



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

MAR 15 2012

REPLY TO THE ATTENTION OF:

Andrew Stewart
Chief
Permits and Stationary Source Modeling Section
Bureau of Air Management
Wisconsin Department of Natural Resources
PO Box 7921
Madison, Wisconsin 53707-7921

Dear Mr. Stewart:

The U.S. Environmental Protection Agency has the following comments on the Wisconsin Department of Natural Resources' (WDNR) draft of the Prevention of Significant Deterioration (PSD) Permit for Milwaukee Metropolitan Sewerage District (MMSD) Jones Island Water Reclamation Facility. The permit is for the installation of five new turbines to replace two existing turbines. Each new turbine has a heat input capacity of 42.6 million BTU per hour. The new turbines will operate on landfill gas with natural gas as a backup. Additionally, a 1500 kW emergency diesel generator will be installed. The MMSD Jones Island facility is a major source under the non-attainment New Source Review (NSR) program for particulate matter 2.5 microns or less (PM_{2.5}) and ozone and is a major source under the PSD program. The project will exceed the PSD threshold for greenhouse gases (GHGs) and will require Best Available Control Technology (BACT) limits for GHGs. The draft permit proposes GHG BACT to be good combustion practices.

In order to ensure that the project meets Federal Clean Air Act requirements, that the permit will provide necessary information so that the basis for the permit decision is transparent and readily accessible to the public, and that the permit record provides adequate support for the decision, EPA has the following comments.

- 1) Please correct the typographical error in condition I.B.4.a.(1)(b). Current language reads, "The generator may only be used in emergency situation when electric power is available." Since the generator is used for emergency purposes when the facility is not able to generate electricity using the five new proposed turbines, the current statement appears incorrect. If appropriate, please change "available" to "unavailable".
- 2) The netting analysis on page 32 of the Preliminary Determination document uses a baseline actual emission rate of 23.8 tons per year (TPY) for PM for the two existing turbines. However, according to the permit application, the baseline actual emissions for

these two turbines is 22.4 TPY. Please explain why the higher emissions rate allowed in the permit does not match the data provided in the permit.

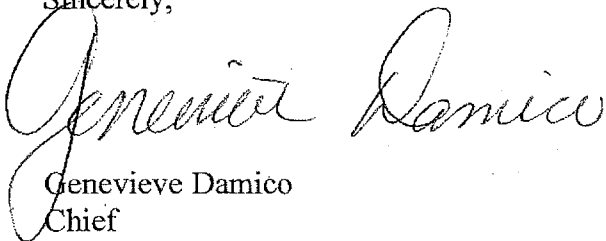
- 3) In the netting analysis baseline emissions for PM_{2.5} are assumed to be equal to the total PM emissions on page 32 of the draft permit's Analysis and Preliminary Determination document. The source is located in a nonattainment area for PM_{2.5} and such an assumption on baseline emissions could incorrectly characterize the net increase of emissions. Please justify why such an assumption is valid or change the baseline emissions for PM_{2.5}.
- 4) It appears that Step 1 of the GHG BACT analysis only considered simple cycle turbines, and did not consider either combined cycle turbines or combined heat and power (CHP) systems. Increasing the efficiency of fuel burning equipment is a way to decrease the emissions of GHGs. Combined cycle turbines are generally more energy efficient than simple cycle turbines, and CHP systems can be even more energy efficient. Please revise the BACT analysis to consider both combined cycle turbines and CHP systems, along with simple cycle turbines, or provide an explanation in the record as to why these were not considered available control options for this particular source. Also, please explain whether the BACT analysis considered any simple cycle turbines with higher efficiency than the units selected. If such turbines were not considered, please explain why WDNR believes the turbines selected are the most efficient units available for this source. Or, if such turbines were in fact considered, please explain why a more efficient unit was not selected as BACT.
- 5) The GHG BACT determination includes the use of good combustion/efficient operation for the turbines, but these practices are not listed in the draft permit or otherwise described in the permit record. In the final permit, please describe the types of good combustion/efficient operation practices that will be used.
- 6) Page 11 of the draft permit contains language that is unclear regarding the frequency of emissions testing of GHGs for the turbines. Please clarify, in the final permit, when and how often GHG emissions testing will be required for the turbines. Will there be a regular testing interval for GHG emissions from the turbines in the final permit?
- 7) The GHG BACT determination says that the cost of constructing a pipeline for captured Carbon Dioxide (CO₂) transport makes carbon capture and sequestration (CCS) an economically infeasible control option for this proposed project. However, there is no cost or economic analysis provided to support this statement. Please revise the BACT analysis to include an evaluation of costs and other impacts of installing and operating a CCS system, including a CO₂ pipeline.
- 8) Instead of including a numerical GHG BACT emission limit for the turbines, page 11 of draft permit contains a variable efficiency limit, in btu/kwh, which varies with the ambient air temperature and the turbine load, and includes a "real world" operation factor of 1.25 designed to allow for actual operations of the turbines. Additionally, condition A.6.b(g) instructs the permittee to interpolate between data points for all temperatures

and loads not specifically identified in Table A. The use of such a table and interpolation allows for an unlimited number of emissions limits and is difficult to practically enforce. The definition of BACT in 40 CFR §52.21(b)(12) allows establishing a design standard in lieu of an emission limitation as BACT, but only if "technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emissions standard infeasible" and where the record "set[s] forth the emissions reduction achievable by the implementation of such design" and shows that the selected design would "achieve equivalent results" to a numeric limit. Please add a single numerical BACT emission limit(s) for GHGs – on a equivalent Carbon Dioxide Equivalent (CO₂e) or individual GHG basis – that accounts for all GHGs emitted at the facility (e.g., pounds of CO₂e emitted per megawatt hour of electricity produced, on a 12-month rolling average or 365-day rolling average), or explain in the permit record why a numerical limit is technologically or economically infeasible and how the design standard would achieve equivalent results.

- 9) Assuming a BACT emissions limit is established for GHG (in accordance with comment #8), please add appropriate monitoring, recordkeeping and reporting for the emissions limit. The permittee can monitor GHG emissions via direct measurement, or they can either apply established fuel factors (e.g., from Tables C-1 and C-2 of EPA's GHG Mandatory Reporting Rule at 40 CFR 98) or develop and use site-specific fuel factors to calculate the amount of GHG emitted from the facility.
- 10) The Preliminary Determination includes the applicant's justification for the adoption of a 1.25 real world operation factor, as well as comments by the WDNR questioning the validity of this justification. Thus, it appears that WDNR requires further justification that there are unique attributes of this specific project that merit use of the selected operation factor. EPA agrees that the basis for this operational factor should be fully explained in the permit record. If adequate basis for the factor cannot be provided, WDNR should not allow the use of it.

We look forward to working with you to address all of our comments. If you have any further questions, please feel free to contact Andrea Morgan, of my staff, at (312) 353-6058.

Sincerely,



Genevieve Damico
Chief
Air Permits Section